Carey Elastite

REG. U.S. PAT. OFF.

TRADE MARK REG. U.S. PATENT OFFICE

EXPANSION JOINT

ELIMINATES EXPANSION TROUBLES

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REG. U.S. PAT. OFF.

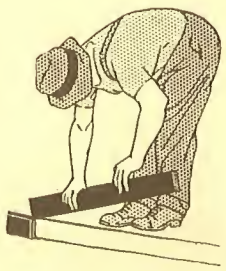
TRADE MARK REG'D. U.S. PATENT OFFICE

EXPANSION JOINT

ELIMINATES EXPANSION TROUBLES

IN ROADS

STREETS
DRIVEWAYS
SIDEWALKS
AND PAVED AREAS
OF CONCRETE
BRICK
GRANITE BLOCK
OR WOOD BLOCK



IN BRIDGES

RETAINING WALLS
DAMS
RESERVOIRS
SWIMMING POOLS
STADIUMS
ROOFS
FLOORS
AND OTHER STRUCTURES

INTRODUCTION

EXPANSION JOINT, the smallest single item of material in most engineering work, has a most important and vital relation to the safety and durability of the structure. Failure to recognize the importance of making proper provision for expansion and contraction has ruined or made unsightly much costly construction. Every rigid structure, whether it be a road, bridge, viaduct, dam, reservoir or building, that is worth building is surely worthy of the slight additional expense required to insure its beauty and permanence.

Cracks and fractures in a concrete structure are easily avoidable and their occurrence may often be charged to deliberate disregard of established engineering facts. The modern concrete pavement with its ease of construction and its extraordinary durability under heavy traffic is, when properly constructed, a valuable asset and a source of pride to the community. When marred and disfigured by cracks and ruptures, it remains ever a reproach to the name of its builder.

The following pages attempt to illustrate, in some measure, the results which have been obtained and which may confidently be expected from the use of Elastite Expansion Joint under many different conditions and applied to a wide variety of structures.

THE PHILIP CAREY COMPANY
Lockland, Cincinnati, Ohio

WHERE Carey Elastite EXPANSION JOINT IS MADE

GENERAL OFFICES AND MAIN FACTORY
OF THE PHILIP CAREY COMPANY
Lockland, Cincinnati, Ohio. U.S.A.

"The Largest Plant of its kind in America"

THE illustration above will convey some idea of the enormous productive capacity of this plant, the entire facilities of which are devoted exclusively to the manufacturing and refining of asphalts, felts, heat insulating materials and allied building products.

Our control of raw materials and our large manufacturing capacity results in low manufacturing costs. Central geographic location, coupled with convenient shipping facilities both by rail and water, are of great advantage in effecting speedy deliveries of our finished products.

Founded 1873

Carey Elastite EXPANSION JOINT

CONTENTS

reinforcement, and serves to knit the mass of asphalt firmly together, giving it greater qualities of cohesion. Secondly, the fibre, thoroughly saturated and impregnated with asphalt, is an inert material, not affected by either temperature or moisture. This valuably assists in rendering Elastite Expansion Joint tough, strong, and resistant to shock, and free from breakage in handling, even in cold weather. In summer the fibre, together with the felt jacket, aids the joint to withstand high temperatures without running, melting or sticking together.

ONE OF OUR BATTERIES OF ASPHALT STILLS

Just the Right Asphalt

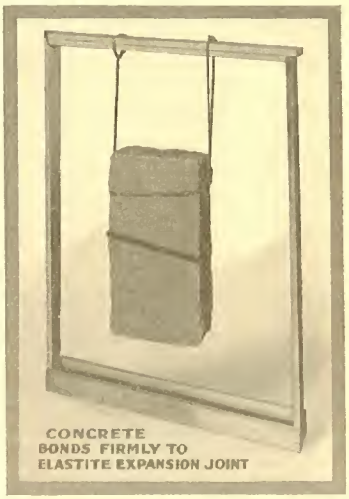
The asphalt is, of course, one of the most important items in the manufacture of Elastite Expansion Joint. Without an asphalt of exactly suitable properties the good qualities of the other elements would largely be neutralized and rendered more or less ineffectual.

With the almost limitless variation in the properties of asphalts, training, experience, and skill are necessary in no small measure to turn out a product which will be exactly suitable for its intended purpose. An asphalt for waterproofing foundation walls underground, or one intended to cover a roof, is not at all fitted for use in expansion joint. The conditions of service must be met, and our long experience in bituminous materials has shown us how to put into the asphalt used in Elastite Expansion Joint, the qualities and properties exactly in proportion to its needs.

Our asphalt is of exceptionally high purity, and is made by fluxing carefully selected asphaltic oils. By combining oils having entirely different properties, and by skillful control in the stills, it is possible to obtain a product exhibiting to any desired degree the properties of each component.

Elastite Expansion Joint requires an asphalt of relatively high melting point, which must at the same time be free from brittleness at comparatively low atmos-

pheric temperatures. It must be firm, but never hard; ductile at all temperatures, but never sticky. These properties we secure by carefully controlled still treatment and by skilful fluxing or blending of the various asphaltic oils as indicated by our experience.


CONCRETE BONDS FIRMLY TO ELASTITE EXPANSION JOINT

Typical Analysis

The typical analysis given below will corroborate the truth of the statements made in the preceding paragraph. It will be readily seen that in this material we have a high melting-point asphalt and yet one which is most astonishingly soft and ductile at freezing temperature.

Melting point (Ball and Ring Method)	225 deg. F.
Penetrations, Standard Conditions:	
At 115 deg. F., 50 grams, 5 seconds	40
At 77 deg. F., 100 grams, 5 seconds	35
At 32 deg. F., 200 grams, 60 seconds	45
Specific Gravity	1.002
Loss at 325 deg. F., 5 hours	0.22%
Soluble in CS2	99.98%
Fixed Carbon	18.00%
Ash	0.01%
Sulphur	0.45%
Flash Test	506 deg. F.
Fire Test	582 deg. F.

Other Physical Properties

Under favorable conditions the rough fibrous felt surfaces of Elastite Expansion Joint bond firmly to concrete. This bond is subsequently strengthened by the natural properties of adhesion inherent in the asphalt saturant with which the felt is treated, and aids in making the joint waterproof and frost tight at all seasons of the year.

Since most concrete work is built during the warmer seasons of the year and the first changes in length are mostly in the form of contraction, the ability of the material to function efficiently as a *contraction* joint is an important asset.

Elastite Expansion Joint is, within certain limits, capable of being compressed within its own volume. When properly installed it can be depended upon to protect concrete work from cracks and breaks caused by expansion and contraction. It cannot, however, accept responsibility for concrete failures due to careless installation, unsound design, improper preparation of subgrade, faulty drainage, settlement of fills, frost heaving or other similar causes.

2⅔″ Expansion in Every 100 Yards!

This is the effect you may expect on your concrete road from the normal temperature change from winter to summer. It is an astounding amount but here are the figures.

The coefficient of expansion for concrete is taken as .0000055—fifty-five ten millionths of an inch for each inch of length per degree of temperature change. Be conservative and call the annual temperature range 135 degrees. In our northern states it will often be more.

Multiply .0000055 x 135 and the product by 300. Reduce to inches by multiplying by 12. The result is 2.67 inches—47 inches per mile—a great deal too much to be safely neglected.

Now it is quite true that if the contraction cracks formed at time of setting could only be kept free from dust and other foreign material, they could be depended upon to take care of at least half of this movement. It is equally certain that a very large number of small cracks will be overlooked by the maintenance gang, and many of the others will either be improperly cleaned or carelessly poured.

After several seasons, with cracks accumulating fine material during contraction to be subsequently compressed by the expanding concrete, a stage is reached when the cracks are filled with hard incompressible material which offers no possibility of relief to the forces of expansion. Under this condition internal compressive stresses may run up to 2,000 or possibly as high as 3,000 lbs. per square inch—sufficient to crush the best concrete or cause buckling at critical points. This is perhaps why many concrete roads built without expansion joints fail during the second, third or fourth summer, after having successfully passed the first year or two without serious results.

Effect of Moisture on Expansion

There seems to be among engineers a very general tendency to underestimate or entirely neglect the effect of moisture in its relation to changes in the length of concrete. That this is well worthy of careful consideration in designing concrete roads will be apparent from the following extracts which we quote from Page 24, "Volume Changes in Concrete" by Alfred H. White, Professor of Chemical Engineering, University of Michigan, a noted authority on this subject:

> "It is evident from what precedes that concrete expands when heated and contracts when cooled and that its change of volume when frozen may be either an expansion or a contraction. It expands when wet and contracts when dry, the magnitude of the change varying with the proportions of the cement in the concrete and its previous history. The richer the concrete is in cement, the greater will be its change of volume under the influence of moisture."
>
> "The volume changes due to fluctuation in moisture are in general greater than those due to change from winter to summer temperature. It follows that concrete placed where it is continually dry or continually wet will not be subject to nearly as great alterations of volume as concrete which is exposed to the weather."

On Page 26 Professor White calls attention to another strange phenomenon —a gradual increase in the bulk of concrete which has been observed in concrete exposed to the weather—as follows:

"It is a matter of common knowledge that cement sidewalks after several years show marked expansion with results similar to those shown in Figure 9, reproduced from Boynton's Portland Cement Sidewalk Construction. This progressive expansion has been explained in a preceding section as due to a locking of the particles of aggregate in the expanded position, which allows water to enter and hydrate portions of hitherto untouched cement. The only apparent way to prevent this progressive expansion is to provide liberal and frequent expansion joints or prevent the concrete from becoming water soaked."

The U. S. Department of Agriculture, Bulletin 532, Page 27, mentions laboratory measurements on large concrete specimens which indicate that under favorable conditions moisture can cause a change in length equivalent to that produced by 109 degrees change in temperature. Further down on the page occurs this statement:

"Furthermore, it has been demonstrated by subjecting hardened concrete to alternate wetting and drying, its length may be changed irrespective of temperature changes."

On Page 28, this Bulletin says:

"There may be conditions of prolonged extremes of wetness and dryness in the road which will affect the expansion and contraction to an appreciable degree. Thus in the spring of the year the prolonged moisture of the previous winter might so aid the expansion occurring during the first day of high temperature that the road will heave where proper allowance has not been made for this expansion. There are also conditions of poor drainage in the sub-base, particularly in a low section in the road, where the concrete will be practically constantly saturated, in which case the expanding effect of the moisture will be in evidence."

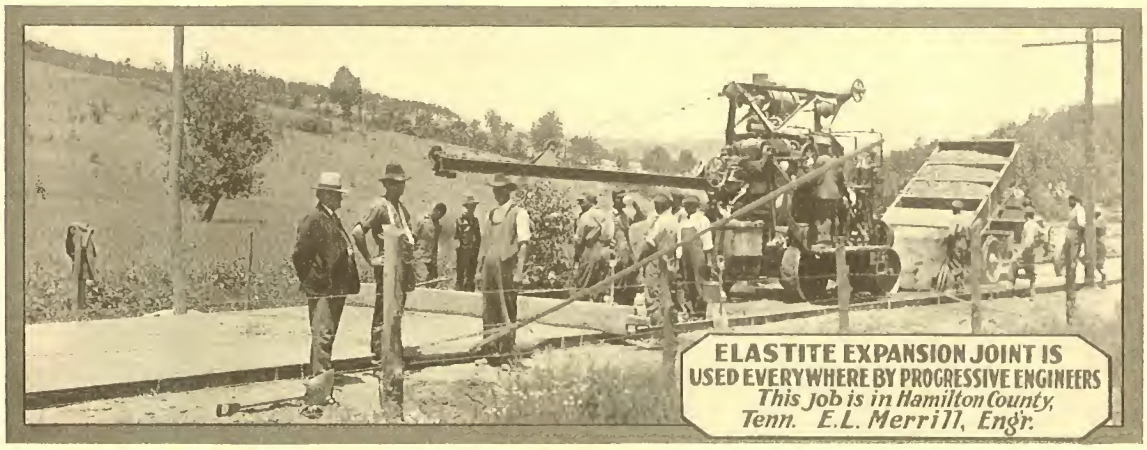
These convincing statements come from high authorities. They show that in considering expansion the effects of both temperature and moisture changes are equally and vitally important. Proper provision means "Use Elastite Expansion Joint."

The Test of Service

Elastite Expansion Joint has been on the market for many years. It dates back to the early infancy of the concrete road. It has kept pace with the development of road building from practically nothing to one of the nation's mightiest industries. We are conscious of a certain pride in the inconspicuous but important part that our product has taken in this tremendous growth and progress.

The art of constructing modern hard surfaced roads has not progressed to its present state without far-reaching changes in materials and practice. The popularity of various materials has waxed and waned. One system and another have come and gone. Others, in favor now, will not be with us long. Of many materials and methods tried few have survived the rigorous tests of years. Conspicuous among the survivors is Elastite Expansion Joint. Its record of service has fixed it firmly in accepted engineering practice. It has endured.

Correctly designed and honestly built of proper materials, with the sole idea of rendering dependable, continuous and everlasting service, Elastite Expansion Joint continues to enjoy the confidence of engineers and practical road builders everywhere. It has been tried and tested and has not been found wanting.



Carey Elastite EXPANSION JOINT

ROADS AND STREETS

THREE fine roads whose continued attractiveness is insured by the wise use of Elastite Expansion Joint, both longitudinally and transversely.

Carey Elastite EXPANSION JOINT

EXPANSION JOINTS ARE NECESSARY

HOOL & JOHNSON'S Concrete Engineer's Handbook, Page 214, Paragraph 16c, referring to concrete roads, says:

> "Expansion Joints must be provided to prevent cracking due to temperature changes. These should be provided at linear intervals of from 30 to 50 feet, depending upon the climate of the region in which the pavement is situated."

G. A. Hool and Nathan C. Johnson are probably the two foremost authorities on concrete in the world. Without their books on the subject, no progressive engineer's library is complete. Their technical works are used as standard text and reference books by probably every engineering college in the country.

Elastite Expansion Joint is insisted upon by many State Highway Departments, County and City Engineers.

Carey Elastite EXPANSION JOINT

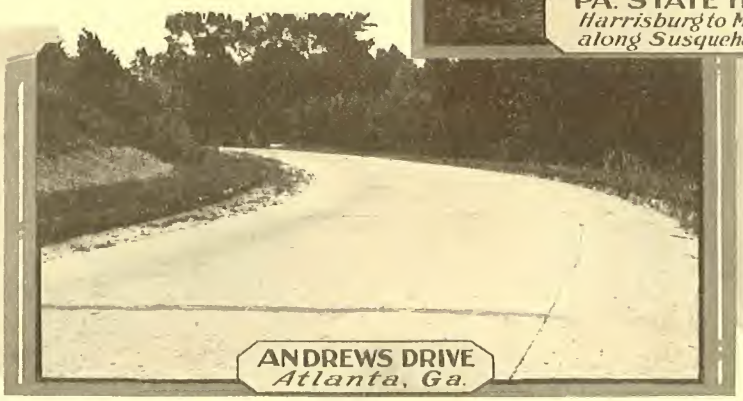
TIPTON FORD ROAD
near Tipton, Mo.

NEW CASTLE-NEW WILMINGTON HWY
Pennsylvania.
Thomas A. Gilkey, County Engr.

CONN STATE HIGHWAY
in Naugatuck Valley.

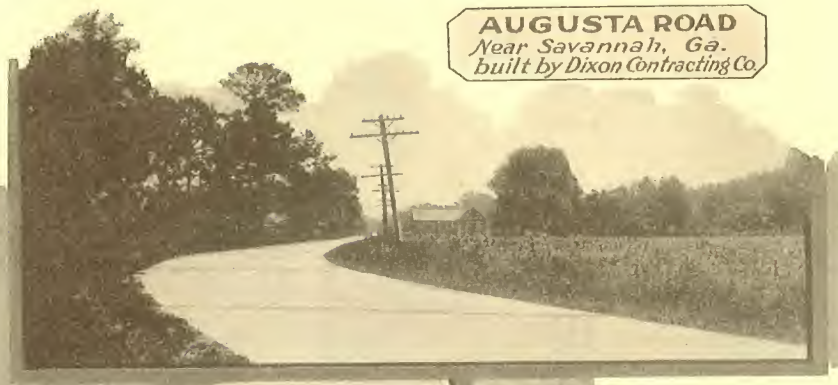
ELASTITE Expansion Joint is preventing cracks in these roads. It will do the same in yours.

PA. STATE HIGHWAY
Harrisburg to Millersburg along Susquehanna River.



ANDREWS DRIVE
Atlanta, Ga.

Carey Elastite EXPANSION JOINT



AUGUSTA ROAD
Near Savannah, Ga.
built by Dixon Contracting Co.

NO loss, no waste, no regrets, when Elastite Expansion Joint is used.

WILLOW STREET
North Little Rock, Ark.
J.B. Bateman, Contractor.

ROUTE — 14
Cape May to Rio Grande, N.J.
Wm. P. McDonald Co. Contractors

NATIONAL ROAD
Bet. Wheling, W.Va. and Pa. Sta. Line.
Kenedy Constr. Co. Contractors.

VENICE ROAD
Inglewood, California.
Oswald Bros. Contractors

Carey Elastite EXPANSION JOINT

STREETS TO BE PROUD OF

CIVIC pride in good streets is to be commended. The best way to keep good pavements *good* is to install Elastite Expansion Joints at proper intervals during construction.

IN WIDE PAVEMENTS don't overlook the necessity of central longitudinal Elastite Expansion Joints, in addition to those placed across the roadway. This is a cheap and positive insurance against disfiguring zig-zag longitudinal cracks.

Carey Elastite EXPANSION JOINT

COST IS THE ARGUMENT

That Talks Loudest to the Contractor.

HE likes Elastite Expansion Joint because of its economy and ease of installation. Never sticky or hard to work with. Stiff and rigid as a board, and as easily handled. There is no loss, waste or breakage. It can be piled high and stored any time of year without injury or deterioration, and is good till used up.

Carey Elastite EXPANSION JOINT

ELASTITE Expansion Joint is never sticky, never brittle; always firm, yet plastic and resilient.

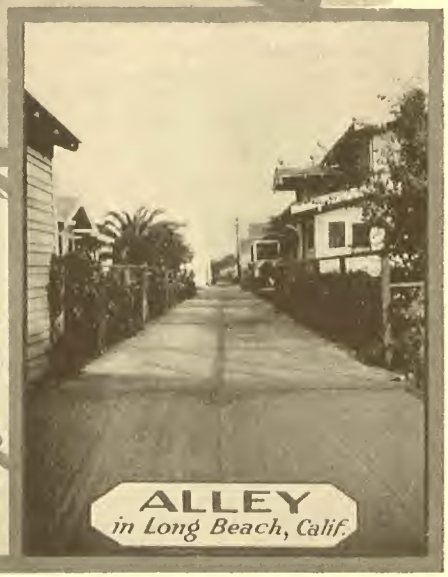
Carey Elastite EXPANSION JOINT

WESTERN AVE.
Watertown, Wisc. Arnold Kraft, City Engr.
E. L. Bartlett Contr

THE ENGINEER WANTS a good job. His professional reputation is staked on every piece of work he designs. Elastite Expansion Joint has a record of satisfactory performance, covering years of use in important work in all parts of the country.

FAIRMOUNT CEMETERY
Henderson, Ky.
Mr. W. Hopkins City Engr.

THIRD AVE.
Chisholm, Minn.



ALLEY
in Long Beach, Calif.

Carey Elastite EXPANSION JOINT

STRETCHING THE TAXPAYER'S DOLLAR

BY preventing cracks and buckles due to expansion, Elastite Expansion Joint not only saves maintenance expense but prolongs the life of the pavement itself. The Taxpayer wins on both counts.

SPECIFICATIONS

EXPANSION joint in concrete pavement is a point upon which modern engineering opinion is not entirely in agreement. The matter is a complex one, involving many more considerations than are plainly and unmistakably apparent. Our engineers have been studying roads, both with and without expansion joints, since the early infancy of the concrete roadway. The specifications herewith presented are the result of combined experiences and observations of a capable and highly trained staff of technical experts through a wide range of conditions extending over a period of many years.

Specifications for Expansion Joints in Concrete Roads

Transverse Expansion Joints shall be constructed at intervals of 30 feet. Joint Filler shall be ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place in a straight line across the roadway, at right angles to the center line of the road, in a plane perpendicular to the surface. It

Specifications for Expansion Joints in Brick Pavement with Cement Grout Filler

Expansion Joints shall be constructed between pavement and each curb. Joint Filler shall be not less than ½" or more than 1" in thickness, depending on width of street, and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared strips. Joint filler shall be installed before the concrete is poured and securely held in its proper position and alignment in a vertical plane. It shall extend entirely through the combined thickness of brick, cushion and concrete base, and left flush with the wearing surface.

In addition to the above, at the discretion of the engineer, the pavement shall be separated longitudinally from street car track rails by joint filler not less than ¼" nor more than ½" in thickness, installed in a manner similar to that described in the preceding paragraph.

Expansion Joints in Creosoted Wood Block Pavement

For pavement of creosoted wood blocks, with their widely varying qualities of absorption, grain, moisture, resin and sap, and consequent lack of uniformity in expansion and contraction, no generally applicable coefficient of expansion can be stated. Experience indicates that comparatively thin and closely spaced transverse joints, to-

gether with a thick joint along each curb, can be depended upon in general to give reasonable protection. With this in mind the following is suggested as a basis for specification.

Transverse Expansion Joints shall be constructed at intervals of about 25 feet. Joint Filler shall be not less than ⅜" or more than ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared strips. Joint filler shall extend through the entire depth of the paving blocks, and left flush with the surface.

Longitudinal Expansion Joints shall be constructed between pavement and each curb. Joint Filler shall be not less than ½" nor more than 1" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt and furnished in prepared strips. Joint Filler shall be installed as the blocks are being laid and shall extend through the entire depth of the paving blocks and left flush with the surface.

In addition to the above, at the discretion of the engineer, the pavement shall be separated longitudinally from street car track rails by joint filler not less than ¼" nor more than ½" in thickness, installed in a manner similar to that described in the preceding paragraph.

To provide for excessive expansion in local areas, it is well to insert between individual blocks in each course, at intervals across the street, small pieces of joint filler conforming to the dimensions of the blocks, and staggered in the courses. Inserts placed in this manner can often be advantageously used in making repairs on old pavements.

Specifications for Expansion Joints in Granite Block with Cement Grout Filler

Longitudinal Expansion Joints. Follow same specification as given for Brick Pavement.

Transverse Expansion Joints. Follow same specification as given for Brick Pavement.

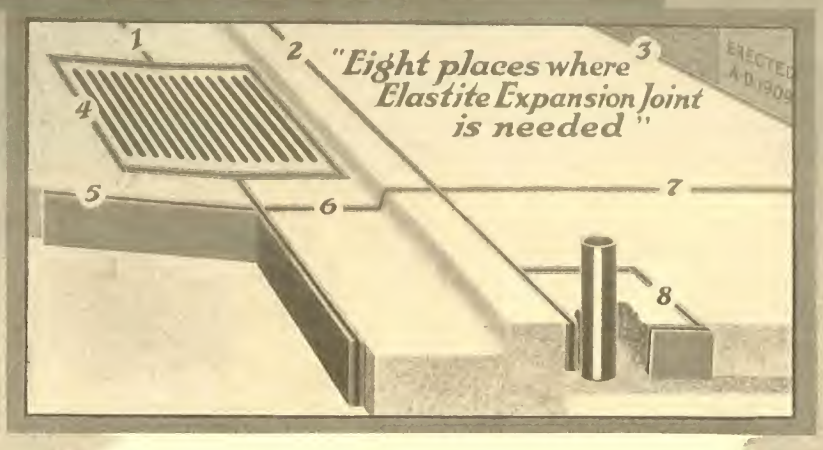
Specifications for Expansion Joints in Concrete Base Under Sheet Asphalt, Bitulithic and Other Bituminous Surfaces

Any pavement surface may fail without necessarily damaging the base below it, but we have yet to hear of a base failure which did not involve the ruin of the wearing surface. The application of the wearing course removes all opportunity for inspection. By the time failure has progressed to the surface, the damage is done and serious losses must be faced.

Make sure of the subsoil drainage. See that the subgrade is rolled and compacted beyond possibility of settlement. Satisfy yourself that the concrete base slab is adequately proportioned to safely carry the pounding tonnage of traffic to which it will be subjected. Do all these things, and to make assurance doubly sure, provide the proper expansion joints in the concrete supporting structure.

Transverse Expansion Joints. Use as specified for Concrete Pavement.

Longitudinal Expansion Joints. Use as specified for Concrete Pavement.



Careful Engineers Eliminate Every Danger from Expansion and from Contraction of Walks and Streets by Using "Elastite Expansion Joint" as Follows:

1. Longitudinally between the pavement and the curb.
2. Longitudinally between the sidewalk and the curb.
3. Between the sidewalk and the building to absorb vibration and expansion.
4. Around sewer openings and manholes.
5. Transversely about every 30 feet in the pavement.
6. Transversely about every 30 feet in the curb.
7. Transversely about every 30 feet in the sidewalk.
8. Around all posts and obstructions.

CONCRETE SIDEWALKS AND DRIVEWAYS

THE amount of yardage of concrete in walks and driveways built each year in any of our growing cities is apt to be rather a startling figure. The well-deserved popularity of concrete has caused it to become, in most localities, practically the only material used for this purpose.

The sidewalk, used daily by practically the entire population, is in some respects the most conspicuous feature of a city street. The attractive effect of the finest thoroughfare may be sadly marred by defective walks. In this enlightened age there is little excuse for cracks, ruptures and buckles in concrete work.

Every sidewalk or driveway worth building is worth protecting. Elastite Expansion Joint should be used in all cases, to avoid disfigurement and damage from expansion and contraction.

While concrete sidewalks and driveways may in general be considered as forms of concrete pavement, the specifications which govern them must be modified somewhat to better adapt them to this particular class of work.

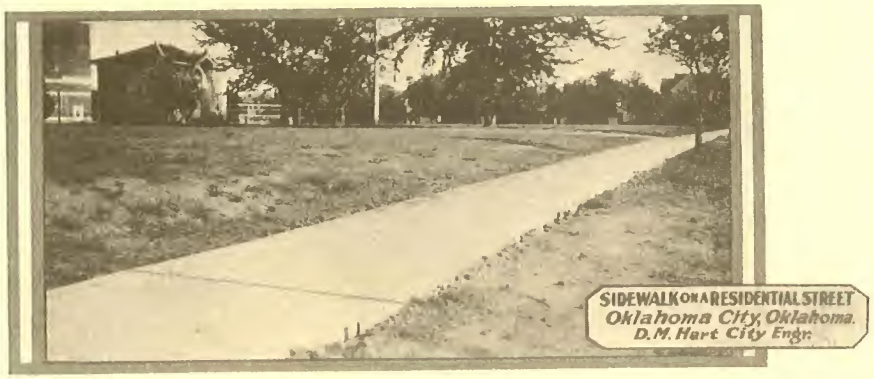
Carey Elastite EXPANSION JOINT

THE unbroken surface and attractive appearance of these fine walks will be, not only to the builders, but to the daily users, a long-continued source of satisfaction. Elastite Expansion Joint was installed at regular and proper intervals.

THE DRIVEWAY AND THE SIDEWALK

AROUND residential property appearance is a primary consideration. Cracked and broken concrete work not only offends the eye but may seriously affect real estate values.

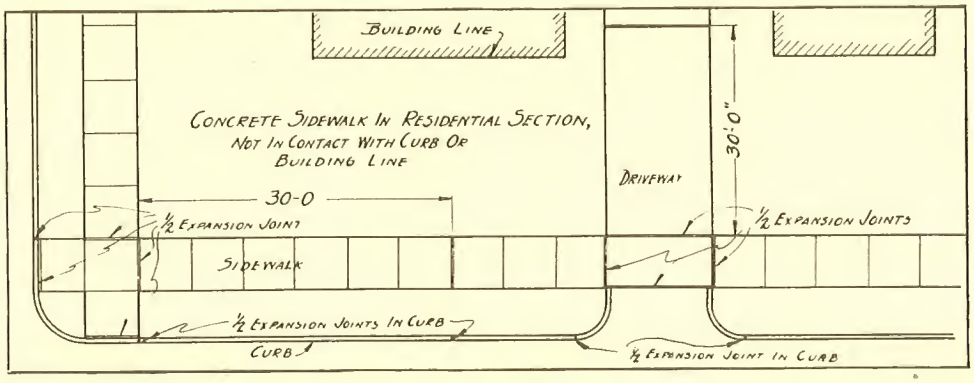
Enduring protection against expansion and contraction troubles is assured by the proper use of Elastite Expansion Joint, which comes in dimensions and shapes to fit every requirement.



SPECIFICATIONS

Specifications for Concrete Sidewalk in Residential Section

Transverse Expansion Joints shall be constructed at intervals of about 30 feet. Joint Filler shall be ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place in a straight line across the walk, at right angles to it, in a plane perpendicular to the surface. It shall extend through the entire thickness and width of the concrete, and shall be left flush with the finished surface. Joint Filler installed in similar manner shall be placed at radius returns and at points where sidewalk joins the curb. Poles, lighting standards and other fixed objects which extend through the walk shall be separated from the concrete by Joint Filler.



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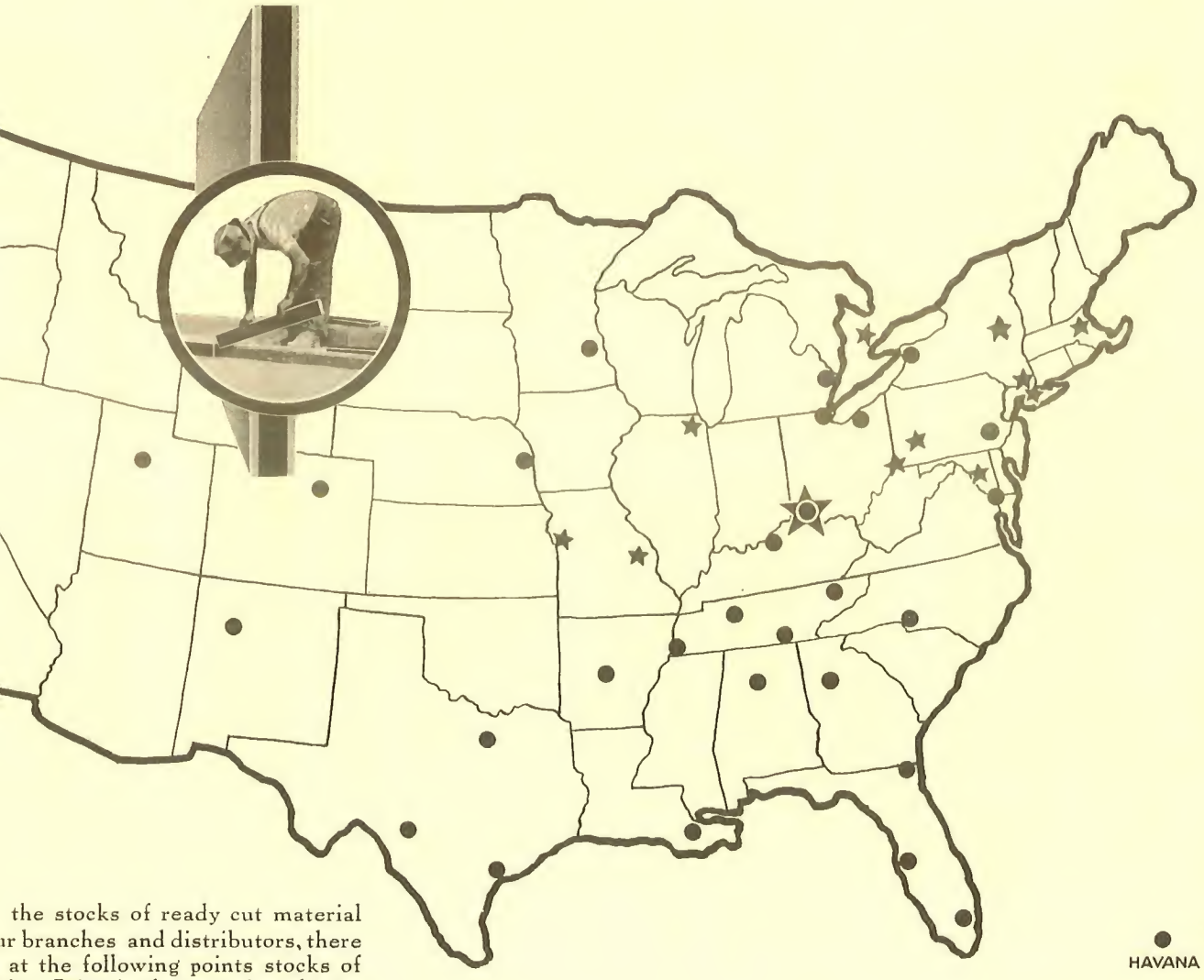
The Philip Carey Company	1413-1415 Main St.	Wheeling, W. Va.

There's

IN addition
carried by
are maintain
Elastite Expa
with modern
and shapes t

CINCINN
PITTSBU
ST. LOU
SEATTLI

A Branch or Distributor Near You!



the stocks of ready cut material
ır branches and distributors, there
at the following points stocks of
sion Joint in factory size sheets,
quipment for cutting it to sizes
order:

ATI	PORTLAND
RGH	SAN FRANCISCO
S	LOS ANGELES
	MINNEAPOLIS
PHILADELPHIA	

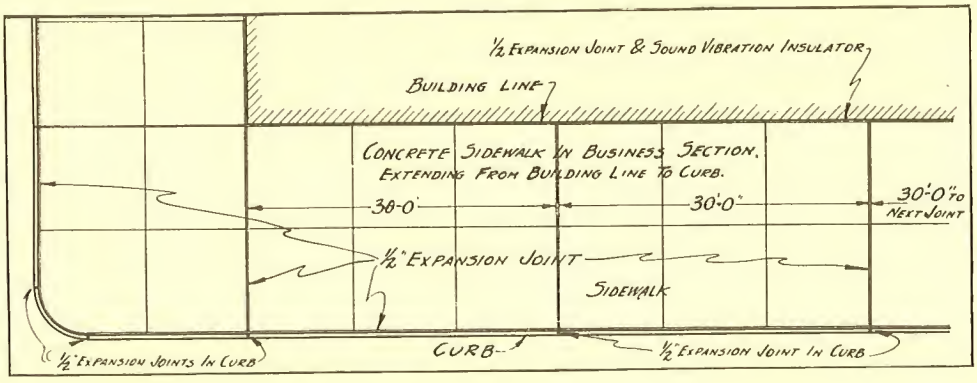
★ *INDICATES A BRANCH OFFICE.*

● *INDICATES A WHOLE-SALE DISTRIBUTOR.*

Specifications for Concrete Sidewalks in Business Sections

Transverse Expansion Joints shall be constructed at intervals of about 30 feet. Joint Filler shall be ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place in a straight line across the sidewalk, at right angles to the center line of the walkway, in a plane perpendicular to the surface. It shall extend through the entire thickness and width of the pavement, and shall be left flush with the finished surface. Joint Filler installed in similar manner shall be placed at radius returns and at points where sidewalk joins the curb. Poles, lighting standards, and other fixed objects which extend through the walk shall be separated from the concrete by Joint Filler.

Longitudinal Expansion Joints shall be constructed in such manner as to separate the sidewalk from abutting buildings, curb and other permanent objects. Joint Filler shall be ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place to proper grade and alignment. It shall extend through the entire thickness of the walk and be left flush with the finished surface.



Carey Elastite EXPANSION JOINT

CONCRETE PAVED AREAS

In extensive areas of concrete paved surface, it is particularly advisable that proper and ample provisions be made to take care of the forces of expansion and contraction. Usually such areas are confined on one or more sides by buildings or other permanent structures, which fact emphasizes the importance of adequate protection, furnished by Elastite Expansion Joint.

SPECIFICATIONS

Expansion Joints ¼" thick shall be constructed in such manner as to divide the surface into rectangular areas of 15', more or less, in each dimension, or as indicated on architect's plans. Joint Filler shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place in a plane perpendicular to the slab surface. It shall extend through the entire thickness of the slab and shall be left flush with the finished surface. All building columns, poles, catch basins, manhole tops and other fixed objects which extend through the slab shall be separated from the concrete by Joint Filler of the thickness specified above.

Carey Elastite EXPANSION JOINT

CONCRETE CURB AND GUTTER

CURB & GUTTER
La Canada, Calif
Built By Mc Crea Contr Co.

Many Engineers and Contractors are unaware of the advantages gained by using Elastite Expansion Joints in curb and gutter construction. Our curb or combined curb and gutter joints are convenient and economical, and we cut them accurately to your order to fit any section. They are stiff and easy to handle and as simple to install as the customary wood or steel headers. Their use not only prevents expansion and contraction damage to the work, but by sealing the joint openings, no water can percolate through into the subsoil.

SPECIFICATIONS

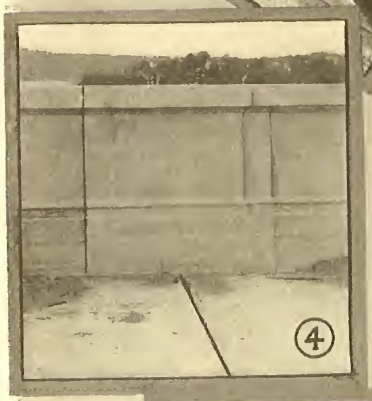
Transverse expansion joints shall be constructed at intervals of 30 feet. Joint Filler shall be ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared pieces of size and shape conforming accurately to the cross-section of the concrete. Joint Filler shall be installed before the concrete is poured and securely held in place in a plane perpendicular to the length of the curb. It shall make a complete separation of adjoining sections of concrete, and shall be left flush with the finished surfaces.

INSTALLING CURB JOINTS

CURB & GUTTER
Beharrell str. New Albany Ind.
Mc Culloch & Condra Contr.

Carey Elastite EXPANSION JOINT

CONCRETE BRIDGES



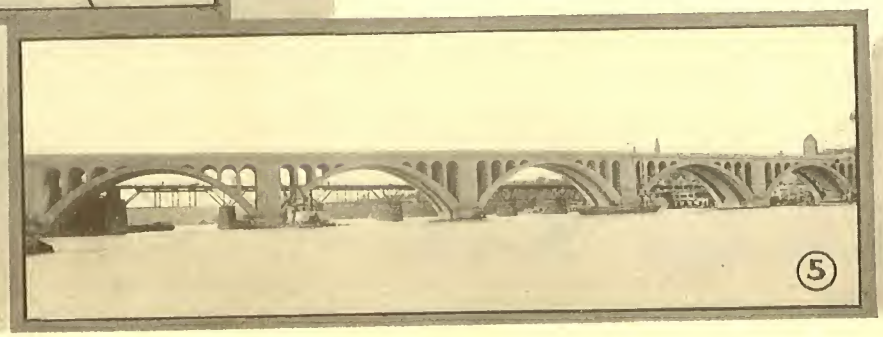
THE KEY BRIDGE across the Potomac River at Washington, D. C., was built by U. S. Army Engineers. Reinforced concrete, 2700 feet long, 70 feet wide, 85 feet above mean low water level, and carrying a double track electric railway, two 16 foot roadways and two 8 foot sidewalks. This monumental structure is fittingly named after Francis Scott Key, composer of "The Star Spangled Banner."

(1) View of two of the main arches.

(2) and (3) Elastite Expension Joints in spandrel piers and parapet.

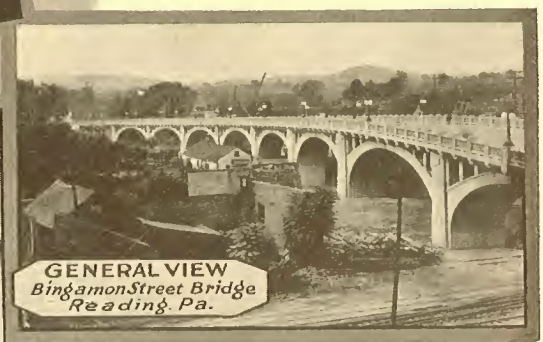
(4) Elastite Expansion Joints in sidewalk and parapet.

(5) General view.



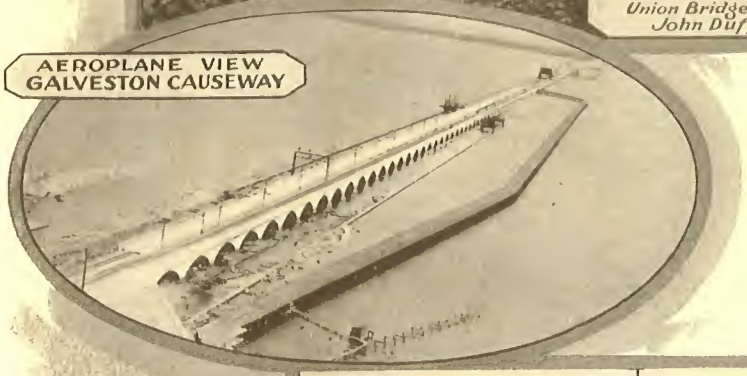
Carey Elastite EXPANSION JOINT

PROGRESSIVE bridge engineers and contractors everywhere know they can depend on Elastite Expansion Joint to do its work under all conditions. It has a record of many years successful and satisfactory service.



WILLIAMSTON BRIDGE N.C.
F.A. Project No. 116.
Cornell Young Co. Contr's Macon, Ga.
W. L. Craven, Bridge Eng'r.

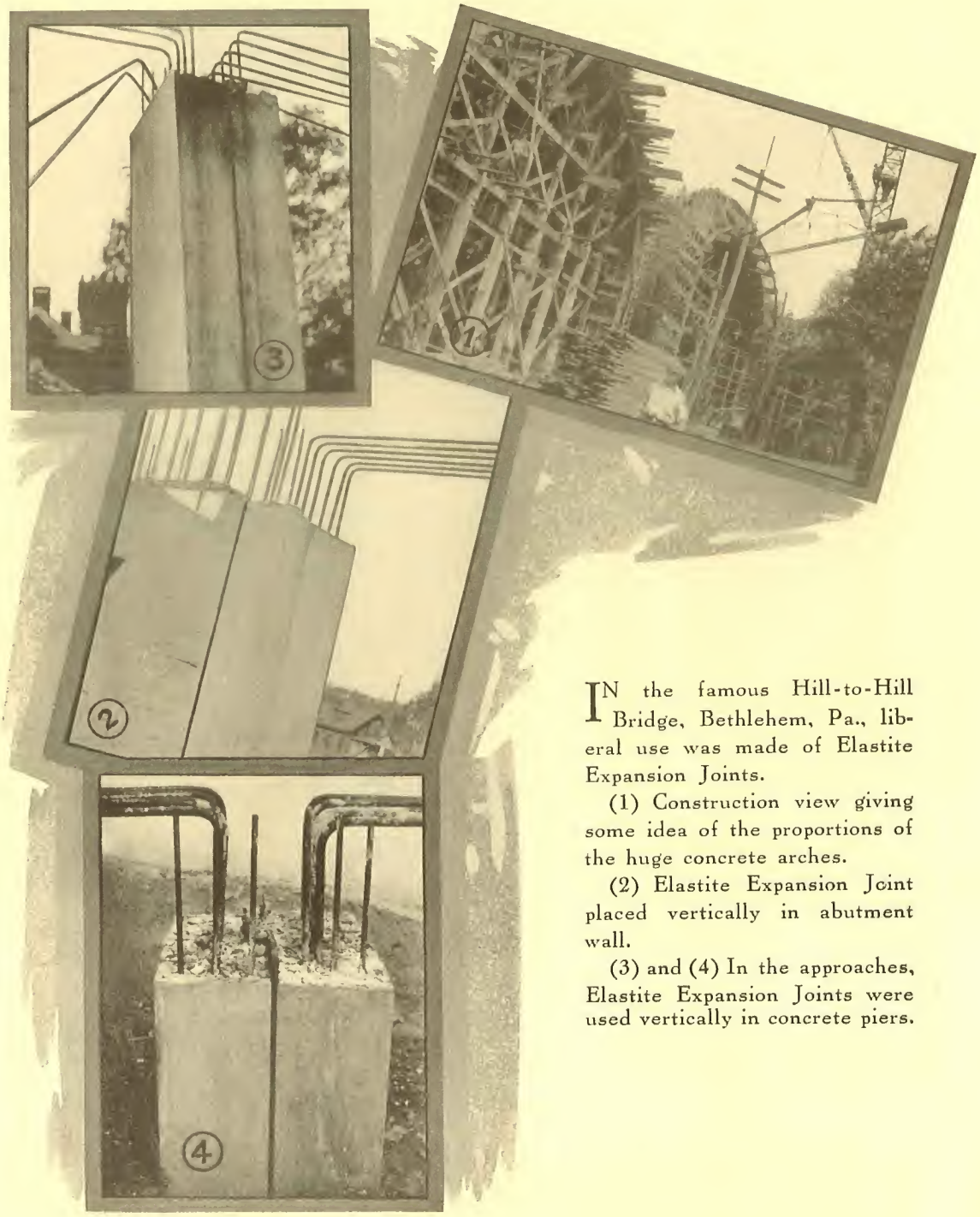
WENATCHEE RIVER BRIDGE
Chelan Co. Wash.
Union Bridge Co. Contractors.
John Duff Co Engr.



AEROPLANE VIEW
GALVESTON CAUSEWAY

SMALL bridges change in length at the same rate as big ones. They both need Elastite Expansion Joints.

THE
FAMOUS GALVESTON CAUSEWAY
Galveston, Texas.



IN the famous Hill-to-Hill Bridge, Bethlehem, Pa., liberal use was made of Elastite Expansion Joints.

(1) Construction view giving some idea of the proportions of the huge concrete arches.

(2) Elastite Expansion Joint placed vertically in abutment wall.

(3) and (4) In the approaches, Elastite Expansion Joints were used vertically in concrete piers.

Carey Elastite EXPANSION JOINT

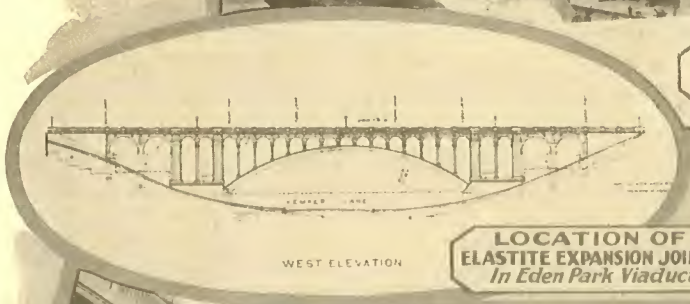
IT ASKS NO FAVORS

ELASTITE Expansion Joint doesn't need to be handled tenderly in cold weather, and it is not necessary to store it in the shade in summer time. Its tough, rugged construction and the extraordinary qualities of the asphalt in the filler enable it to stand an astonishing amount of abuse and still remain serviceable.

Elastite Expansion Joint is never sticky or brittle and is firm but plastic at all seasons of the year.

Carey Elastite EXPANSION JOINT

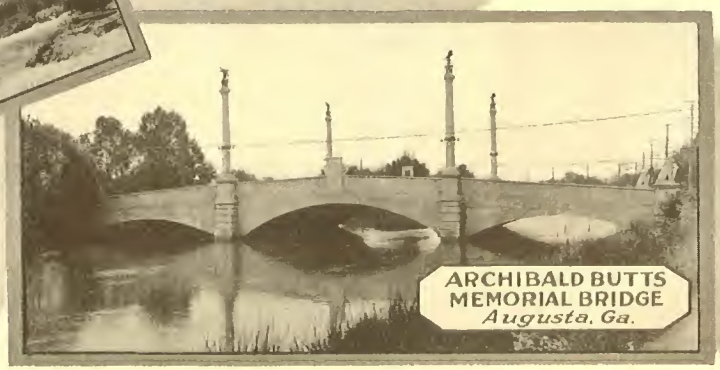
EDEN PARK VIADUCT
Cincinnati, Ohio.
built by D.P. Foley.



WEST ELEVATION

LOCATION OF
ELASTITE EXPANSION JOINTS
In Eden Park Viaduct.

BIG TUJUNGA BRIDGE
Los Angeles County Calif.
Wm Leadbetter Co. Contr's.



ARCHIBALD BUTTS
MEMORIAL BRIDGE
Augusta, Ga.

ANY SHAPE, ANY SIZE, ANY QUANTITY

ELASTITE Expansion Joint is cut at the factory, to sketch, blue-print or pattern, to suit any requirement. Special equipment does this quickly, accurately and economically. It reaches the job ready to be set in place.

Expansion joints of considerable area, such as for bridges, are made up of several pieces of size suitable for convenient handling. For securely holding these pieces together, we have a convenient and ingenious little steel clip which is furnished at no charge, if desired.

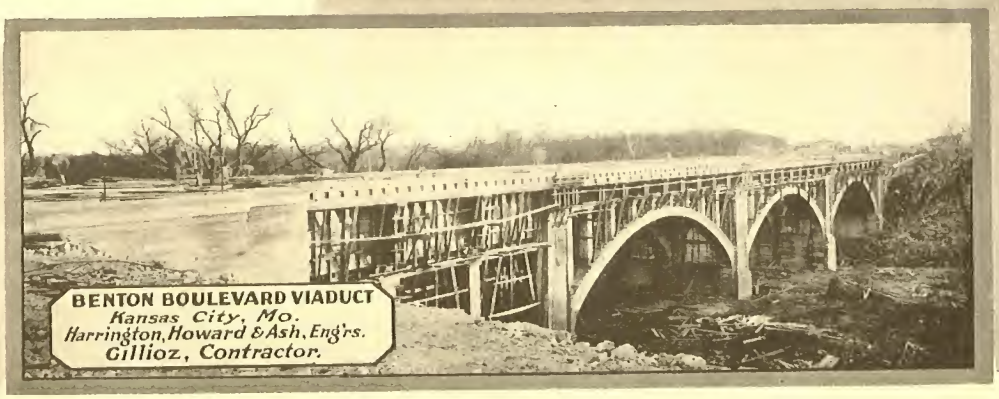
Carey Elastite EXPANSION JOINT

FIRST AVE. BRIDGE
Cedar Rapids, Ia.
Marsh Eng. Co. Engineers.
Koss Constr. Co. Contrac'rs.

STADIUM WAY VIADUCT
Tacoma, Wash.
Designed by J.C. Manley, City Engr.
Built by Albertson, Cornell Bros. & Walsh.

IMMEDIATE
EXPANSION JOINT

LARGE warehouse stocks located at convenient transportation centers enable us to ship promptly almost any size or quantity to any point in the country, and get it there when you want it.



BENTON BOULEVARD VIADUCT
Kansas City, Mo.
Harrington, Howard & Ash, Eng'rs.
Gillioz, Contractor.

Universally Used

The illustrations on this page and those immediately preceding indicate that the use of Elastite Expansion Joint in bridge construction is not confined to any one locality. Wherever men build with concrete, it is accepted as the standard expansion joint material. Its unvarying high quality, dependability, and economy enable it to enjoy the full confidence of engineers and construction men everywhere.

Make sure you get Elastite Expansion Joint when you buy.

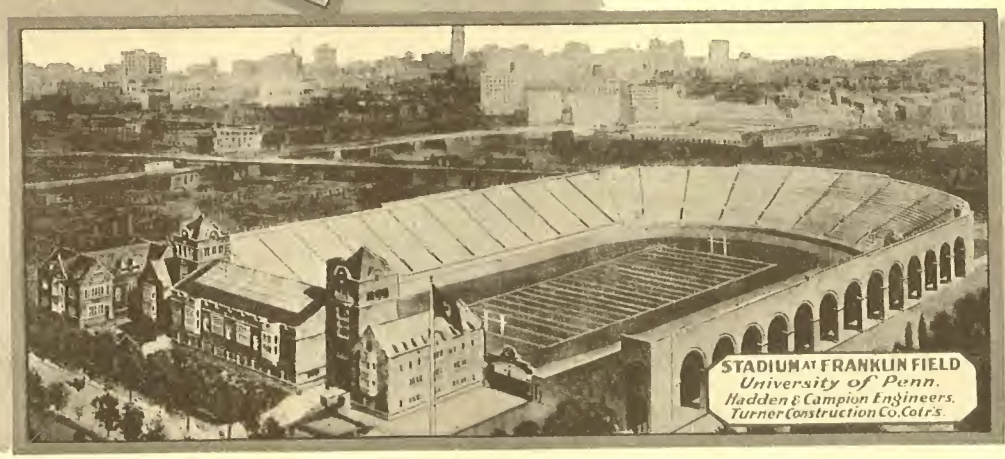
SPECIFICATIONS

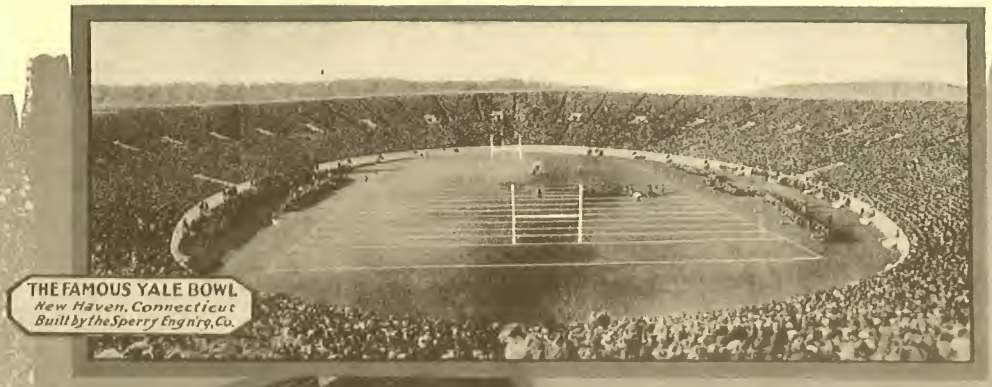
Expansion Joints of thickness specified shall be constructed in such manner and at such locations as indicated on the engineer's plans. Joint filler shall consist of suitable bituminous material that will not become soft and sticky in hot weather, nor hard and brittle in cold weather, reinforced on each side with a layer of high grade asphalt-saturated felt, and furnished in prepared strips or sheets, or in sections ready cut to fit the work, as required. Joint filler shall be installed before the concrete is poured and securely held in proper position as shown on plans. It shall extend through the entire thickness of the concrete.

Carey Elastite EXPANSION JOINT

CONCRETE STADIUMS

A CONCRETE STADIUM has come to be recognized practically as a necessity at each of our colleges and universities. High schools are building them also, and not a few municipalities have likewise been quick to see the advantage of such an adjunct to the city. Besides its use for athletic events the stadium is eminently adapted to many other kinds of public gatherings, such as band concerts, official ceremonies, mass meetings and patriotic celebrations.





IN stadium design, as well as in many other types of construction, it will be noticed that most engineers depend on Elastite Expansion Joint to protect the costly structure from the destructive effects of expansion and contraction.

We illustrate a few installations which are representative. Detroit University, University of Kansas, Hendrix College, Michigan Agricultural College, and the City of Baltimore are also on the list, together with many others.

Specifications for Expansion Joints in Concrete Stadiums

Expansion Joints of thicknesses specified, shall be constructed in such manner and at such locations as indicated on the engineer's plans. Joint Filler shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt and furnished in prepared sheets or in sections ready cut to fit the work as required. Joint filler shall be installed before the concrete is poured and securely held in proper positions as shown on the plans. It shall extend through the entire thickness of the concrete and shall be left flush with the finished surfaces.

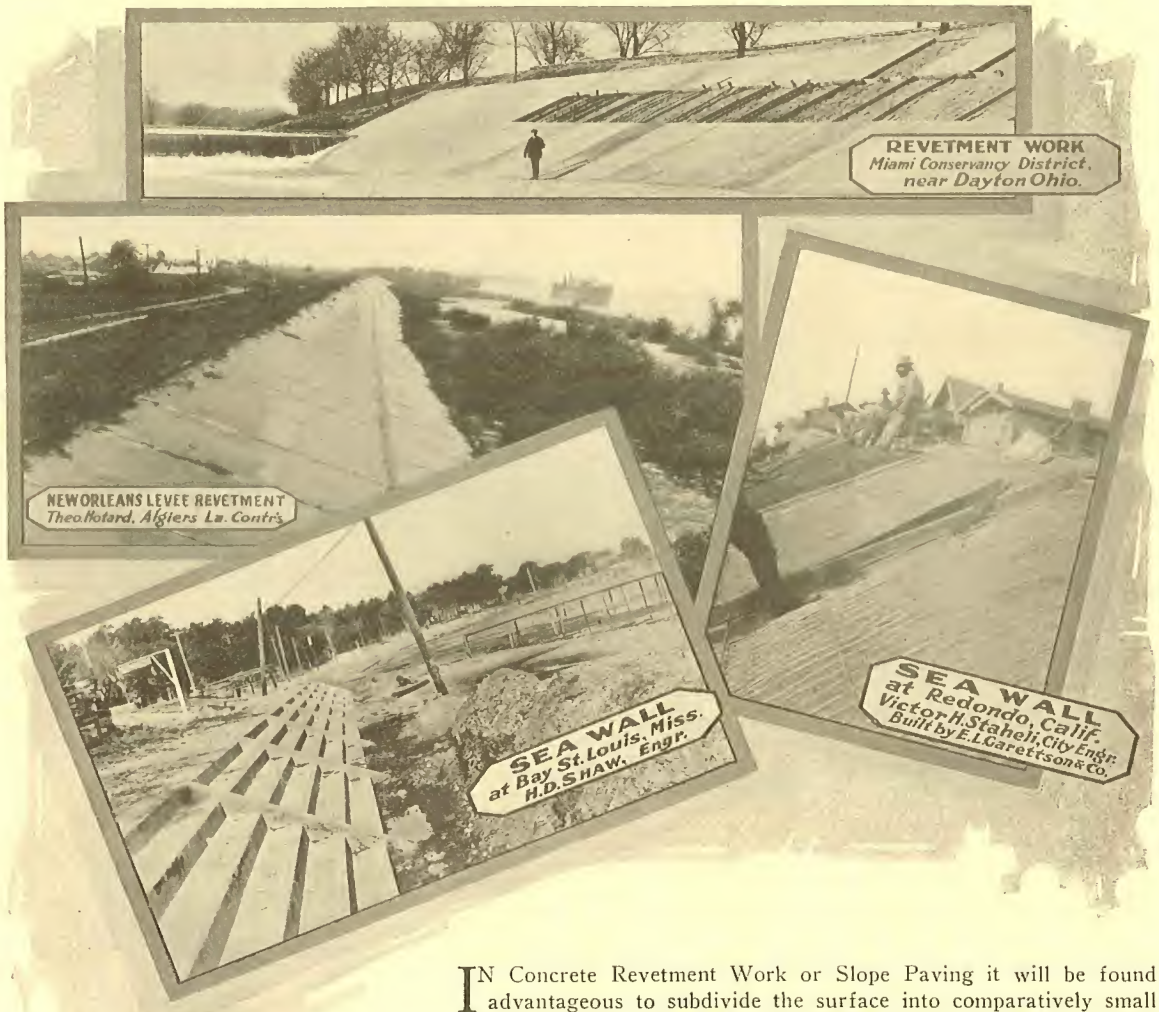
CONCRETE POOLS AND RESERVOIRS

THE prevention of cracks and ruptures is of special importance in structures intended to hold water. Among these are swimming and wading pools, basins around fountains, reservoirs, water filtration works and settling basins. Breaks and leaks in such structures not only allow water to escape and become a nuisance, but may also permit impure water to enter and cause serious contamination.

Elastite Expansion Joint, correctly installed, is the proper and certain means of insuring concrete work against the damaging and disfiguring results of expansion and contraction incident to changes in atmospheric temperature and moisture.

Carey Elastite EXPANSION JOINT

CONCRETE REVETMENT WORK



IN Concrete Revetment Work or Slope Paving it will be found advantageous to subdivide the surface into comparatively small areas, separated by strips of Elastite Expansion Joint. Settlement and frost action are usually severe, and extreme care is justified to insure the permanence of the work. The joints are usually placed closely, as will be noted in some of the illustrations above.

SPECIFICATION—Expansion Joints ¼" thick shall be constructed in such manner as to divide the surface into rectangular areas not exceeding 10 ft. in either dimension. Joint Filler shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high-grade saturated felt, and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place in a plane perpendicular to the slab surface. It shall extend through the entire thickness of the slab and project at least ¼" above the finished surface. The projecting portion shall be flattened down with a mallet or similar tool, after the concrete has set.

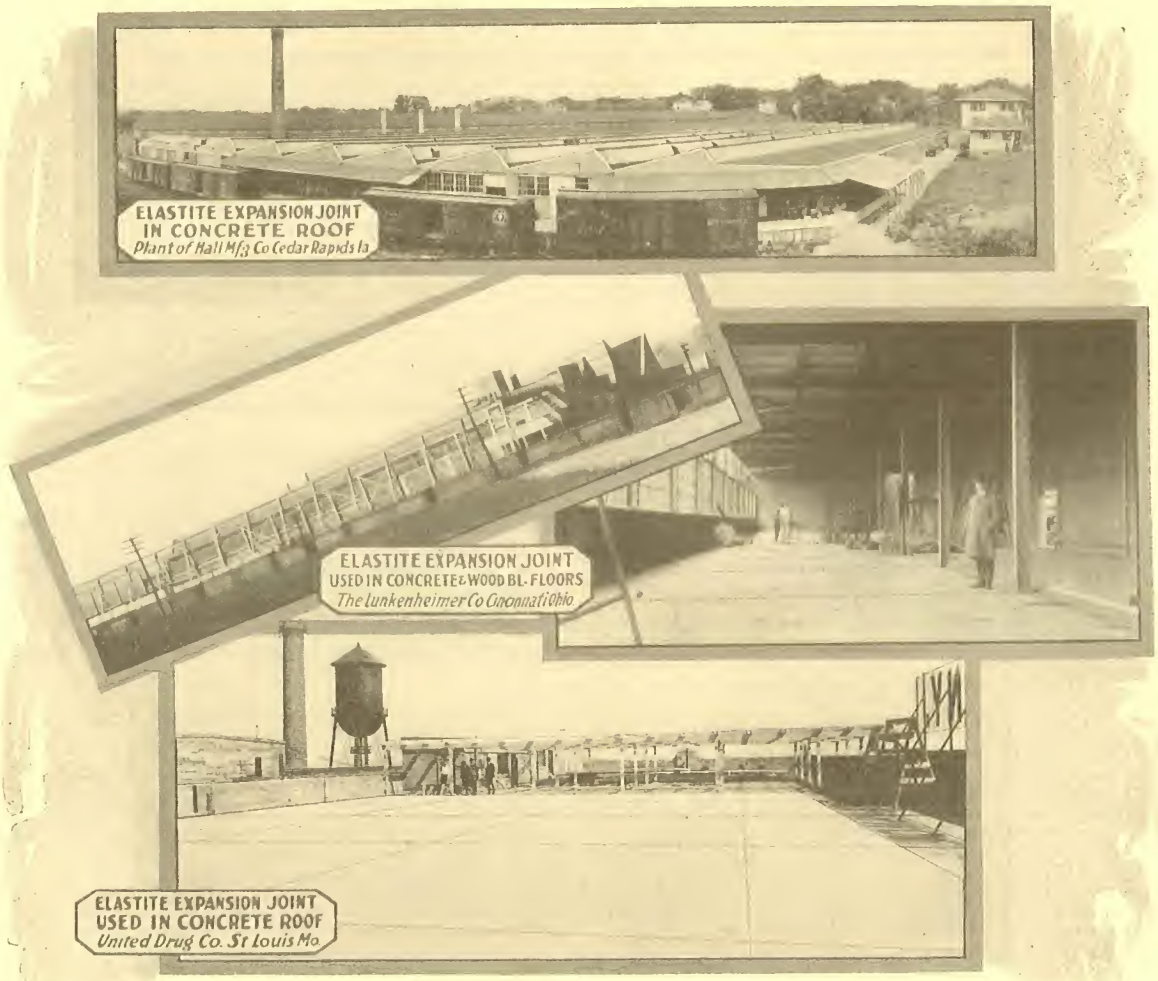
CONCRETE DAMS AND RETAINING WALLS

CONCRETE Retaining Walls and similar structures should be protected from the effects of expansion and contraction by ½" Elastite Expansion Joint about every 30 feet. In order to prevent disturbance of alignment by unequal settlement or pressure the joints should be of such form as to provide a "key" or "interlock." Elastite Expansion Joint is readily shaped or formed to suit these conditions and insures permanently satisfactory results.

SPECIFICATION—Expansion Joints shall be constructed at intervals of 30 feet, more or less. Joint Filler shall be ½" in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high-grade saturated felt, and furnished in prepared sections accurately cut to required dimensions. Joint Filler shall be installed before the concrete is poured and securely held in place in a plane perpendicular to the surface. It shall extend entirely through the concrete and shall be left flush with the finished surfaces.

Carey Elastite EXPANSION JOINT

CONCRETE FLOORS AND ROOFS



PROPER protection of extensive concrete areas such as roofs and floors implies the rational use of Elastite Expansion Joints. They can usually be conveniently placed over roof trusses and purlins where the bending moment is zero. Parapet walls should always be separated from the roof slab by a joint not less than ½" thick.

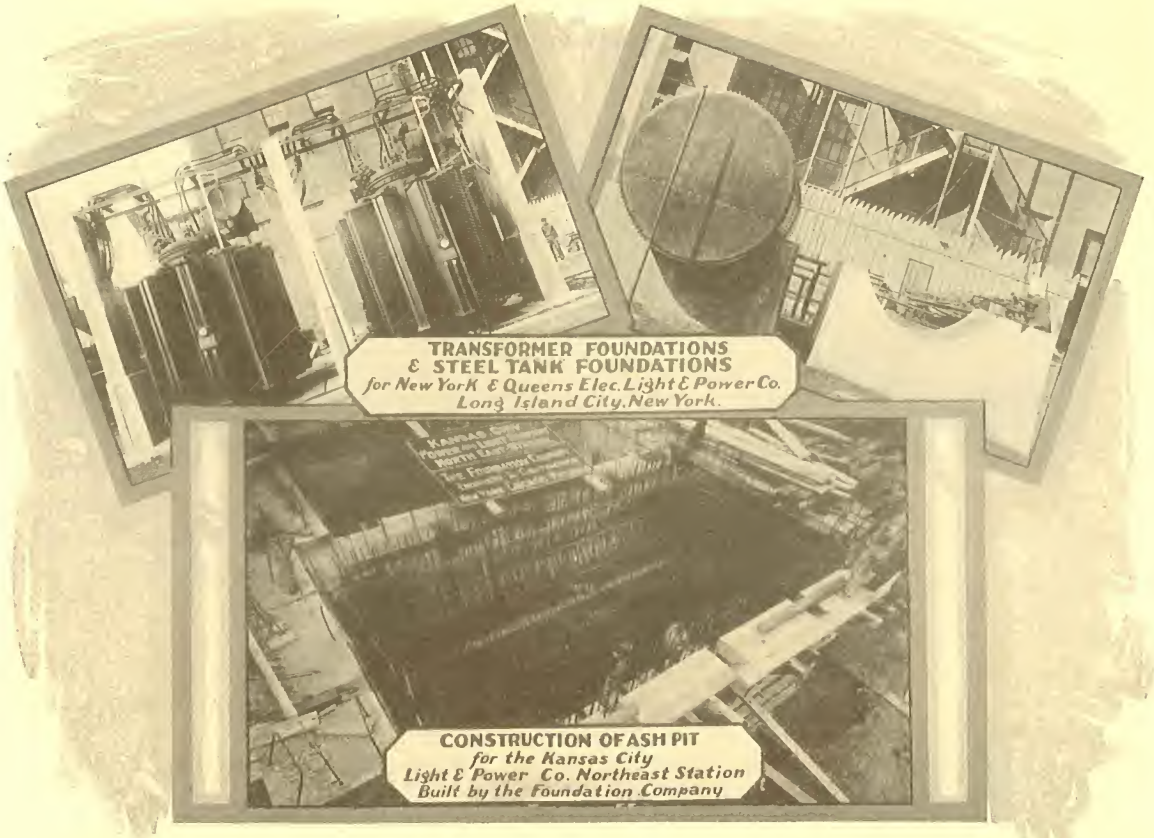
In concrete floors use Elastite Expansion Joints on column centers and bays. Walls, piers, and other fixed objects should be separated from the floor slab by joints not less than ½" in thickness.

Elastite Expansion Joints are also frequently used to good advantage in brick and wood block floors.

SPECIFICATION—Expansion Joint ¼" thick shall be constructed in such manner as to divide the surface into rectangular areas of 15 feet, more or less, in each dimension, or as indicated on architects' plans. Joint Filler shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high-grade saturated felt, and furnished in prepared strips. Joint Filler shall be installed before the concrete is poured and securely held in place in a plane perpendicular to the slab surface. It shall extend through the entire thickness of the slab and shall be left flush with the finished surface. Walls, piers and other fixed objects shall be separated from the slab by the joint filler of the thickness specified above.

Carey Elastite EXPANSION JOINT

MISCELLANEOUS



FACTORY Superintendents, Industrial Plant Engineers, Construction Engineers, Manufacturers of Machinery and Equipment, and many others who become familiar with the structure and physical and chemical properties of Elastite Expansion Joint will find in it a singularly versatile material of great possibilities.

Used as a cushion between steel tanks and their supports, it not only prevents rust at these points of contact but equalizes bearing pressures.

It is highly valuable as an electrical insulator and non-conductor.

It absorbs and neutralizes vibrations due to sounds, impacts or operating machinery.

It is absolutely water-proof, strongly resistant to acids and alkalis, and imperishable when exposed to atmospheric elements.

It is tough, durable and possessed of compressive and tensile strength to a considerable degree.

Elastite Expansion Joint is furnished in strips, sheets or ready cut to any required dimensions.

Our Laboratory and Engineering Staff will be glad to assist and advise in the solution of any problems incident to its application.

SEND FOR A SAMPLE

INSTALLATION

General

IN placing expansion joints in a concrete road, there are two important rules which should always be observed.

(*a*) The joint must be constructed perpendicular to the road surface.

(*b*) True surface alignment of concrete on both sides of the joint must be maintained.

Fig. 1—Using notched straight edge.

Experience has shown that expansion joints out of the perpendicular by as small an amount as 5 degrees may cause trouble by reason of one slab sliding upward on its neighbor when expansion takes place. In finishing concrete at a joint, all surplus material must be removed and the surface brought to true grade. Use of split floats and notched straight edge for this purpose are plainly shown in the illustrations.

Neglect of these two vital considerations has frequently resulted in concrete and expansion joints being blamed for rough-riding roads, which in practically every case should really be attributed directly to slovenly workmanship and careless inspection during construction.

Fig. 2—Finishing both sides of joint at once with split float.

Every expansion joint, to function efficiently, should form a complete separation of the concrete. Concrete slabs along both sides of the expansion joint should be finished with an edging tool to a radius of about ¼". This prevents

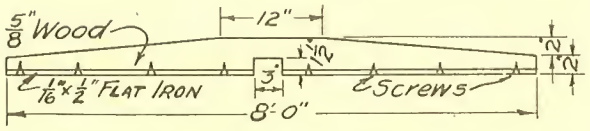


Fig. 3—Notched straight edge of convenient size.

spalling, preserves the appearance, and offers no opportunity for the formation of ruts or holes.

On transverse expansion joints, the joint material should be allowed to project at least ¼" (½" is better) above the concrete. Traffic will flatten and roll it out uniformly, forming a perfectly watertight and frostproof seal over the joint. This would be desirable also in the case of longitudinal center joints, but is usually not practicable on account of interference with belt-finishing. The joint material should, however, be brought up flush with the surface.

The submerged or concealed expansion joint, whether longitudinal or transverse, has proved unsatisfactory in service, and should not be employed. The thin shell of concrete on the surface is soon shattered, exposing the rough edges to the wear of traffic. Rapid spalling can be prevented only by promptly pouring the opening with hot bitumen which is an added expense.

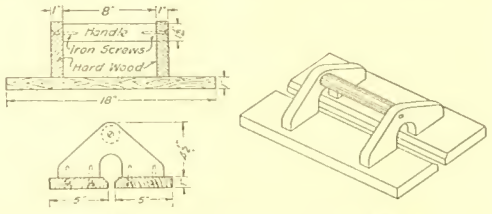


Fig. 4—Split float of proper design.

Most engineers prefer to place expansion joints squarely across the roadway at right angles to its length. This is the simplest way and requires less joint material. There have been a number of concrete roads built, however, in which the joints were set obliquely, making an angle of 75 to 85 degrees instead of the more conventional 90. The principal advantage lies in the fact that the wheels of vehicles pass over it singly instead of in pairs, resulting in less impact and wear, and causing less discomfort to traffic.

Installation Methods

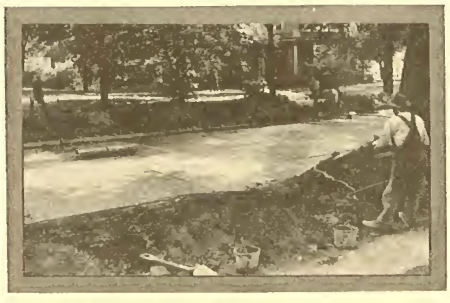


Fig. 5—Finishing at expansion joint with grooved roller.

There are in common use, four methods of installing preformed expansion joints.

(*a*) By means of a wood or steel plate header or bulkhead.

(*b*) Through the use of a joint holder.

(*c*) Employment of wood or steel stakes or pins.

(*d*) By depositing a shovelful of concrete at intervals against each side of the joint. This method should never be followed,

as it is almost impossible under field conditions to secure a decent job. It is productive of much subsequent difficulty on account of joints being out of the perpendicular, causing one slab to ride up above its neighbor when expansion takes place. Its use is indicative of careless, slovenly workmanship and should never be tolerated.

Fig. 6—Installation of expansion joint with wooden bulkhead.

In the header or bulkhead method a 2″ plank or a 1/8″ steel plate is cut to the exact cross--section of the pavement. This is set in a vertical position across the roadway and resting against substantial supporting stakes. Elastite Expansion Joint is then placed against the bulkhead. The joint is kept in position by means of steel pins.

Fig. 7—Withdrawing steel bulkhead after installation of expansion joint.

Concrete is poured up to and several feet beyond the expansion joint. The header may then be carefully worked upward and withdrawn without disturbing the joint. Additional concrete is deposited where the header was removed and the surface struck off and finished with a notched straight-edge and split float. A grooved roller is sometimes very useful.

Fig. 8—A good expansion joint holder made of a T-bar and plate.

Several forms of expansion joint holders or installing devices have been developed. Some of these are in comparatively short lengths or units, supported by steel stakes, and requiring several lengths, usually bolted or clipped together, to reach across the roadway. On ordinary sized jobs this method usually gives good satisfaction. There is perhaps more to be said in favor of the type of holder which has sufficient length and rigidity to span clear across the pavement, the weight resting entirely on the side forms. These are maintained in vertical position by clamping to the side forms, or by steel pins driven through a sleeve into the ground.

Fig. 9—Another type of expansion joint holder made of steel plate.

Elastite Expansion Joint is stiff and rigid enough so that, if necessary, it may be successfully installed

Fig. 10—Dumping concrete directly on top of an expansion joint requires a strong, rigid holder.

with no equipment other than a few steel pins or stakes. These are firmly driven into the subgrade on both sides of the joint, their distance apart depending on the thickness and consequent stiffness of the joint used. Short pins may be used, driven down until their tops are below grade, and left in the work, or the use of longer stock will enable the pins to be withdrawn after concrete is poured, and used over again. Clearance of concrete buckets and other equipment must, of course, be considered in this connection.

Machine Finishing at Expansion Joints

The statement is sometimes made that expansion joints cannot be successfully installed on work which is tamped and finished by mechanical means. The method outlined below is simple, and when followed intelligently will give absolutely satisfactory results.

Fig. 11 — Installing expansion joint with only the help of a few stakes.

It is important that the joint be exactly parallel to the tamping board of the machine. Make sure of this by moving the machine ahead until the tamping board reaches the proposed location of the joint. Mark the side forms opposite each end of the tamper, move the machine back and set the joint in line with the marks. Tamping proceeds up to the joint, the forward movement of the machine being stopped for a few minutes to give thorough tamping to concrete along the joint. Use care not to displace the joint by allowing the machine to push surplus material up against it. When one side is well compacted, carefully lift the tamper over the joint and continue the operation.

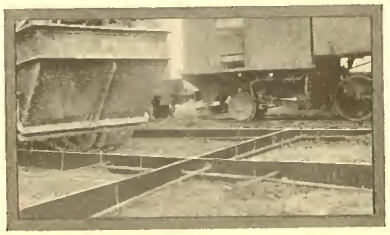


Fig. 12—This shows longitudinal and transverse expansion joint supported in place by steel pins.

Another method which has been well tried out with satisfactory results, consists in leaving the joint submerged below the surface until after the finishing machine has passed. Then by means of slender-nosed tongs, operated from a bridge, grasp the joint and carefully work it up to or slightly above the surface. Finishing is then completed with a split float and an edging tool.

Longitudinal Center Joint

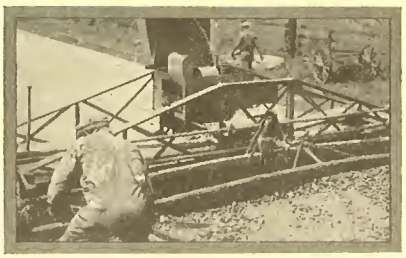


Fig. 13—Most concrete road is machine finished.

While transverse expansion joints, properly installed, can be depended on to prevent transverse cracks and buckles, they really should be supplemented by a longitudinal center joint to afford the road the full protection to which good construction is rightfully entitled.

Most highway authorities now agree that, for widths exceeding 14 ft., the use of a center joint dividing the road lengthwise is in line with the best engineering practice. Careful observation has shown that this construction eliminates the objectionable zigzag cracks which otherwise naturally occur. The results of the Bates Road experiments, conducted by the Illinois State Highway Department, indicate conclusively that these cracks are primarily caused by the warping or curling of the concrete slab, incident to the daily cycle of temperature variations between its top and bottom surfaces.

Using a central joint, roads may be easily built in two longitudinal halves. Thus it is practicable to close only one-half of the road to traffic at one time, avoiding the necessity of providing and maintaining expensive and troublesome detours. This is standard construction in many localities.

Another valuable advantage possessed by the central longitudinal joint is its effect in separating traffic, and tending to decrease the number of collisions. Many states and counties go to the expense of painting the center line for the guidance of vehicles. Elastite Expansion Joint installed in the center of the roadway forms a plainly-visible and absolutely permanent marker that needs no renewal.

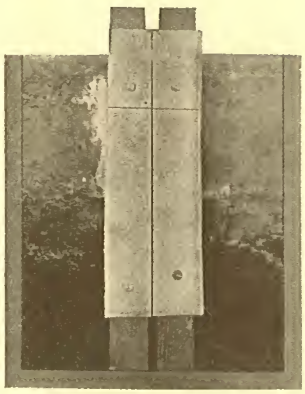


Fig. 14—Curling effect due to temperature variation. The left half of the white card is attached to slab; right half attached to stake driven into subgrade. Photograph taken at noon with black lines coinciding.

Elastite Expansion Joint functions perfectly as a center line joint. By its cushion effect, it prevents adjacent concrete edges from spalling; it is waterproof and does not rot out in service. It can be easily and cheaply installed by common labor. There is nothing in its composition to become a source of danger or damage to vehicle tires, horses' hoofs or pedestrians. Maintenance costs are negligible. The many thousands of miles of it in use speak eloquently of the confidence reposed in it by the highway engineering profession.

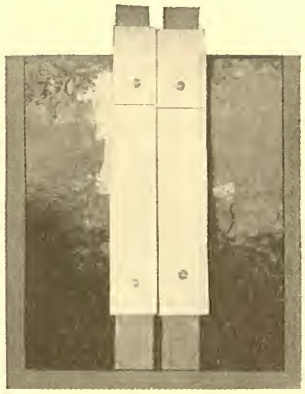
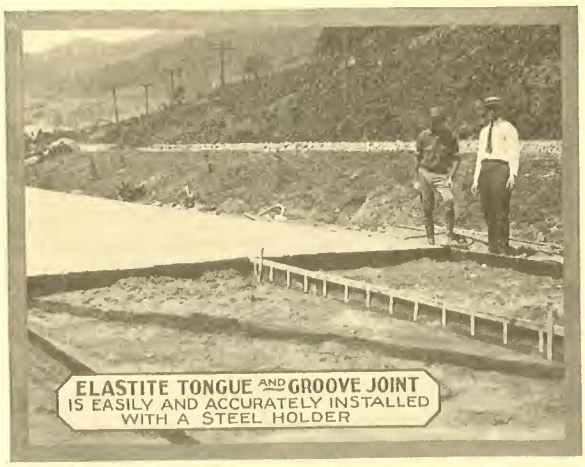


Fig. 15—Same view taken at midnight, the separation of black lines indicates amount of curl in concrete slab. Edges of slab curl down by day and upward at night, due to changing temperature of top surface.

ELASTITE TONGUE AND GROOVE EXPANSION JOINT



THIS is a special form of our regular product, developed to meet certain specific conditions and requirements. It is intended for use both transversely and as a longitudinal center line joint. The materials and construction are similar to those used in our regular Elastite Expansion Joint. We have given it a special shape, as shown in the illustrations.

With adjacent slabs interlocked together by the "tongue and groove" there can be no unequal settlement. Neither can one slab be forced up above its neighbor by localized expansion. They are forced to act together. This preserves the surface alignment and makes permanent the original riding qualities of the road.

By virtue of the cushion thus interposed between concrete slabs there is no possibility of edges crushing or spalling when slight movements of slabs occur. There is in the ¼" thickness, ample "body" to absorb any movements made by the slabs due to settling of subgrade or frost-heaving. Only a thin edge is exposed to traffic, which does away with any tendency toward rutting of concrete at the joint and minimizes maintenance expense. Keyed together by the "tongue and groove" in a firm but flexible grip there can be no uneven settlement or heaving of adjacent slabs.

With Elastite Tongue and Groove Expansion Joint there is no opportunity for water to find its way through to the subsoil. The joint is closed with a permanent waterproof and frost-tight seal.

Installation presents no difficulties for this form of joint. A holder or installing device may be used, or a wood or steel header, or the material can be supported in place by stakes or steel pins driven into the subgrade. It is often convenient to use steel pins about 5/16" or ⅜" diameter passed through holes previously punched in the "tongue." These pins should usually be

about 15″ long and driven about 18″ apart along the joint. When desired, the necessary punching is done at the factory. Installation costs are surprisingly low.

The use of Elastite Tongue and Groove Expansion Joint, both longitudinally on the center-line and transversely at proper intervals, offers the best and most positive concrete road protection. It is not intended to displace our regular straight type of joint, which for most purposes can scarcely be improved, but its use will in many cases solve some of the perplexing problems which have taxed the most capable highway engineers to the utmost.

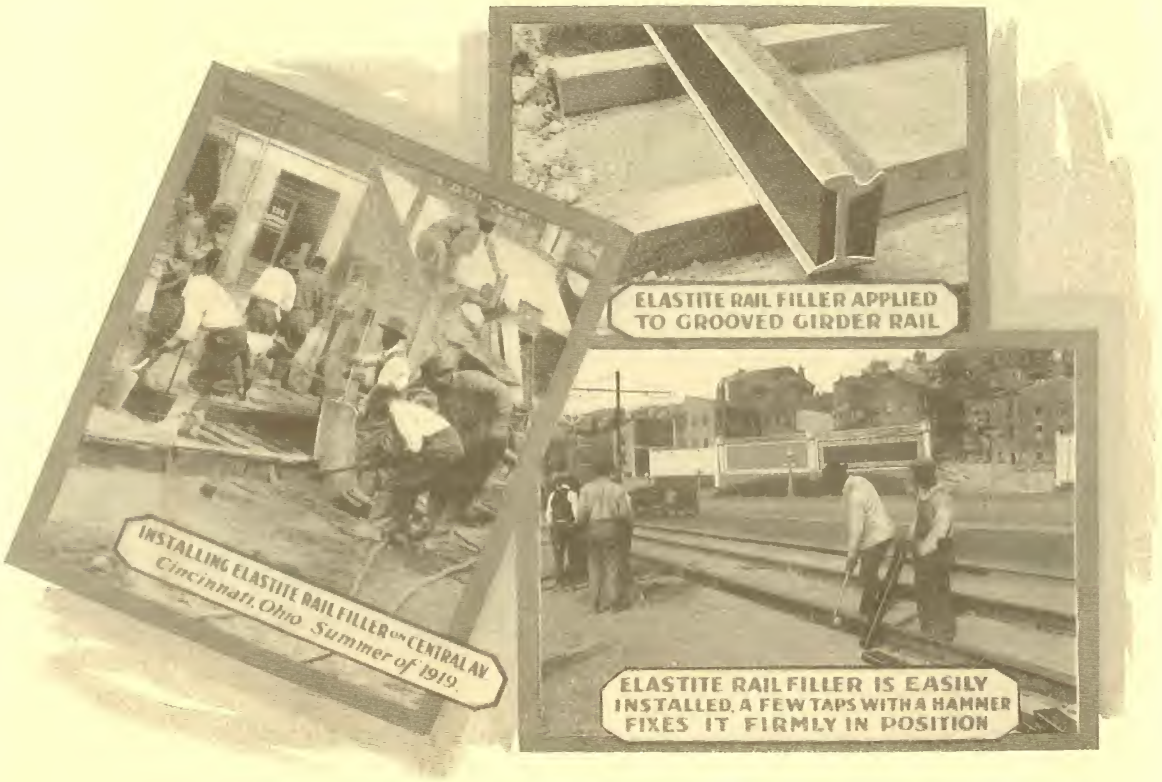
SPECIFICATIONS

Longitudinal Center Joint—Roads exceeding 14′ 0″ in width shall be separated lengthwise on the center line by a deformed expansion joint of such shape as to interlock or key together adjacent concrete slabs. Joint Filler shall be ¼″ to ½″ in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt and furnished in prepared lengths. Joint Filler shall be installed before the concrete is poured and securely held in place in a straight line on the center of the roadway, in a plane perpendicular to the surface. It shall extend through the entire thickness and length of the pavement and shall be left flush with the finished surface.

Deformed Transverse Expansion Joints of such shape as to interlock or key together adjacent concrete slabs shall be constructed at intervals of 30 feet. Joint Filler shall be ½″ in thickness and shall consist of suitable bituminous material that will not become soft in hot weather nor hard and brittle in cold weather, reinforced on each side with a layer of high grade saturated felt, and furnished in prepared lengths. Joint Filler shall be installed before the concrete is poured and securely held in place in a straight line across the roadway, at right angles to the center line of the roadway, in a plane perpendicular to the surface. It shall extend through the entire thickness and width of the pavement, and shall project at least ¼″ above the finished surface. All catch basins, manhole tops, poles and other fixed objects which extend through the pavement shall be separated from the concrete by Joint Filler of the thickness specified above.

Carey Elastite RAIL FILLER

ELASTITE RAIL FILLER

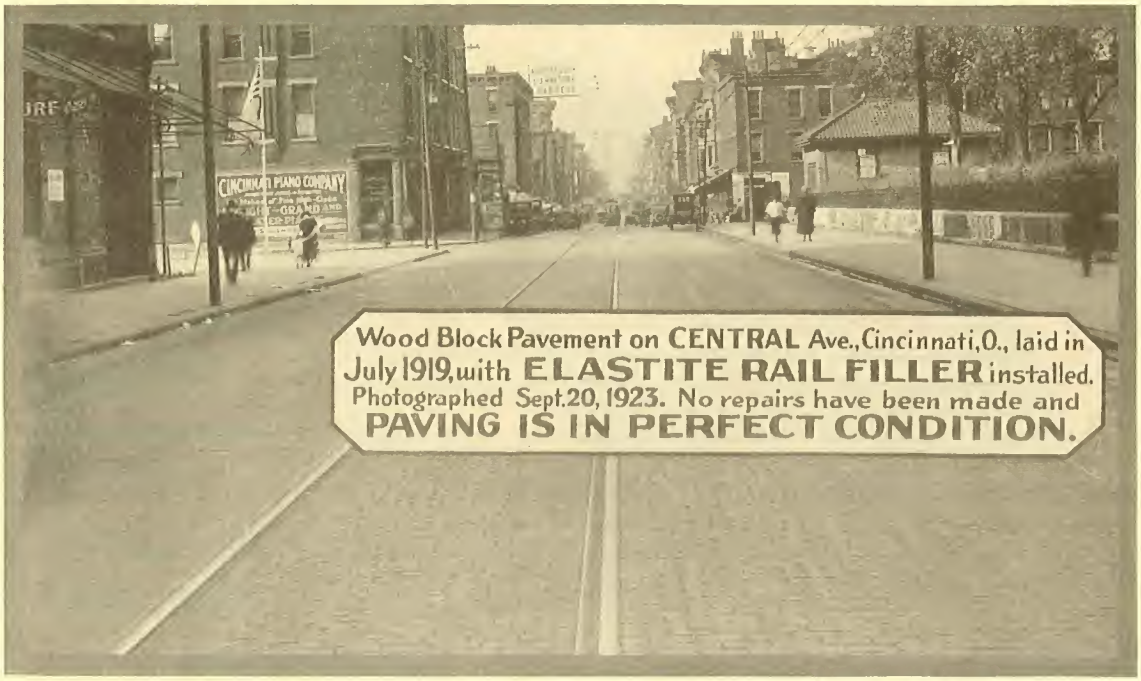


Track Vibration and Paving Destruction

EXPERIENCE has amply demonstrated that a rigid bond or contact between street railway track rails and adjacent pavement is unsatisfactory. The vibrations of the rail under traffic, transmitted directly to the paving, result in a rapid and progressive destruction of the integrity of the structure. The first signs of failure are noted around crossings, switches and frogs. Portions at rail joints are next affected, the trouble rapidly extending itself along the entire length of each rail.

Rigid materials commonly used for filling the space between rail head and base, such as cement grout, plaster, special tile or nose brick, soon become shattered and pulverized by the constant vibration to which they are subjected. Water entering freely, penetrates into the track substructure, carrying with it the displaced particles of hard filler. The effects of frost, coupled with a pumping action frequently set up, soon loosen paving blocks in their bed to the subsequent ultimate ruin of that portion of the pavement adjacent to the tracks.

Elastite Rail Filler is an asphaltic compound, substantially reinforced with asphalt-saturated felt. It is made in strips of 3 foot to 5 foot lengths formed to fit snugly against the web of the rail, completely filling the vertical space between the head and base flange. It extends out slightly beyond the outer edge of the rail head serving as an expansion joint for the pavement. Installation is easy—simply set it in place. A tap with a mallet will hold it there.



It has ample strength and resistance to keep its shape during handling and storage, but readily yields at all temperatures to the compressive stresses brought to bear on it by the pavement which it protects.

Elastite Rail Filler absorbs and neutralizes rail vibrations. It cushions and protects the pavement structure from the shock of rail traffic. It makes a tight waterproof seal preventing the entrance of water to the substructure. Paving can be taken up and replaced without disturbing Elastite Rail Filler. It maintains itself in position, is not affected or disturbed by water and will last indefinitely. It may be removed and re-used over and over again. By its use, track noise is very materially decreased.

Elastite Rail Filler has been thoroughly tried and tested in service over a period of years. Extensive installations in Mattoon, Ills., Quincy, Ills., Oil City, Pa., Akron, Ohio, Des Moines, Iowa, Cincinnati, Ohio, and other cities demonstrate the fact that its use results in vast savings in maintenance and repair charges.

Since the life of the average street railway track rail is about seventeen years, a rail filler, to be efficient, should not require replacement at intervals more frequent than this. The rigid materials commonly used for this purpose are limited in effectiveness to a period of a few months—at most a year or so. Elastite Rail Filler does not wear out or disintegrate. It never needs replacement. There is no real limit to its useful life. It need not be disturbed except for the periodical renewals of rails or ties.

It can be supplied to fit any weight or section of rail in use. In making inquiries for prices, we advise sending a full sized pattern or sketch showing exact size and contour of the rail under consideration, mentioning also the total number of lineal feet of rail involved.

SPECIFICATION—The space on each side of the rail web, between the head and base, and extending out not less than ⅛" beyond the vertical line of rail head, shall be filled by placing in position prepared bituminous slabs composed of inert material incorporated in a tempered asphalt, the whole being substantially reinforced with asphalt-saturated paper or felt. Slabs shall be of proper shape and dimensions to fit closely when tapped into place with a suitable mallet or similar tool. Rails shall be made free from dirt and rust before placing filler.

SIZES, SHAPES AND WEIGHTS

ELASTITE EXPANSION JOINT is furnished in dimensions and shapes to suit every requirement. Lengths of 5 feet to 10 feet are standard. Any width up to 36 inches can be supplied, and we have ample facilities for cutting and shaping the material to meet special conditions. It is supplied ready cut for all pavement sections, any style of crown, and in special shapes or dimensions required for other types of structures. True economy and convenience result from having Elastite Expansion Joint accurately cut at the factory. The material arrives on the job ready to put in the work without delay, waste or added labor cost.

Standard sizes and corresponding estimated net weights are shown in the table below. These weights are averages for estimating purposes only and are not guaranteed. To cover weights of crates when packed for shipment, allow an additional 20 per cent to these amounts.

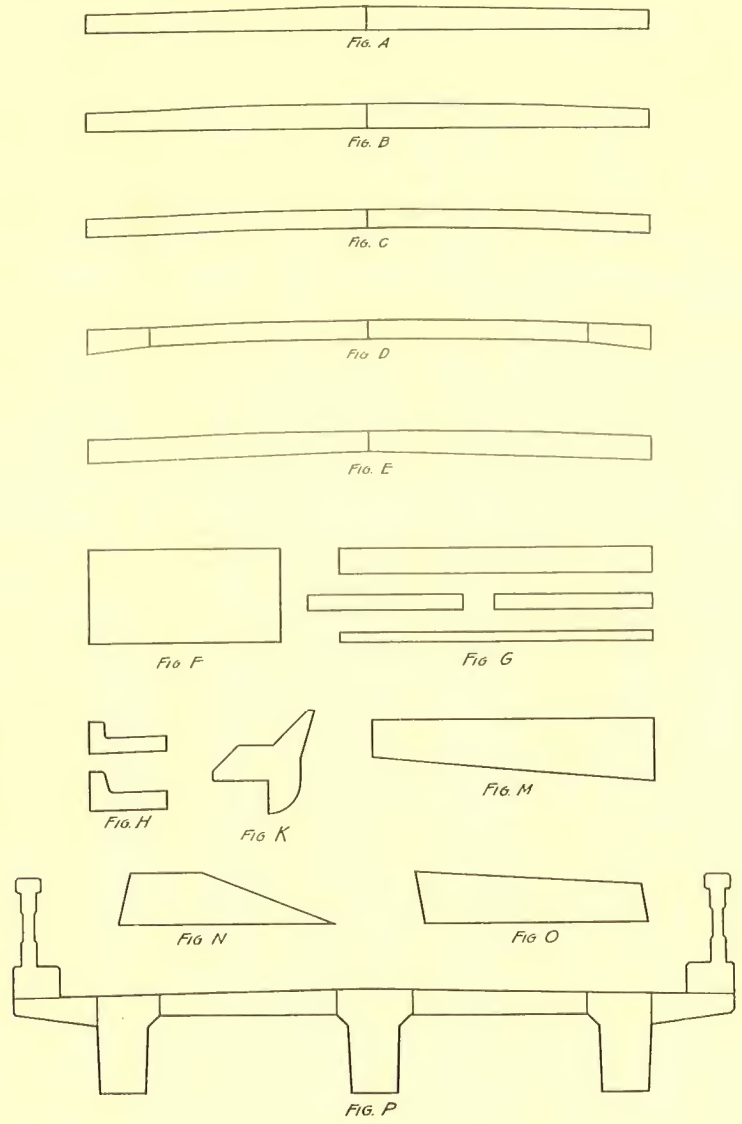
Net Weights Per 100 Lineal Feet

Thickness	Weights in Lbs.										
	3″ lbs.	3½″ lbs.	4″ lbs.	5″ lbs.	6″ lbs.	7″ lbs.	8″ lbs.	9″ lbs.	10″ lbs.	11″ lbs.	12″ lbs.
¼ inch	39	46	52	66	78	91	105	117	130	144	156
⅜ inch	51	60	68	85	102	119	136	153	170	187	204
½ inch	68	79	90	113	135	158	180	203	225	248	270
¾ inch	105	123	140	175	210	245	280	315	350	385	420
1 inch	143	167	190	238	285	333	380	428	475	523	570

It is often desirable to fasten together two or more adjacent sections of Elastite Expansion Joint in order to hold them in fixed position relative to each other. This is frequently the case in concrete bridges and other construction where the area of joint is large and made up of a number of pieces. When requested we include without charge, a sufficient quantity of special steel clips for this purpose.

TYPICAL SHAPES OF ELASTITE EXPANSION JOINT

WHICH WE ARE CALLED UPON TO FURNISH



Figs. A, B, C, D, E, Concrete Road Sections.
Figs. F, G, Rectangular sheets and strips of all dimensions.
Fig. H, Combined Curb and Gutter sections.
Figs. K, M, N, O, Miscellaneous shapes, specially cut to sketch or pattern.
Fig. P, Expansion Joint for concrete bridge assembled in complete unit.

ANY SIZE, ANY SHAPE, ANY QUANTITY
IMMEDIATE SHIPMENT

SHIPMENTS

IN carloads, Elastite Expansion Joint is usually shipped in bulk. It is carefully loaded and piled flat on the car floor. Less than carload shipments are securely crated or bundled in substantial wire-bound packages of convenient size and weight. Bulk shipments give the purchaser the benefit not only of a somewhat more favorable price, but also effect a considerable saving in freight charges. It is often possible for the requirements of several purchasers in the same locality to be shipped as a carload in bulk. The several lots are separated in the car and plainly marked for easy identification.

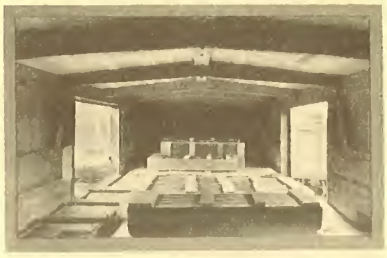


Fig. 16—Car loaded with Elastite Expansion Joint in crates.

Fig. 17—Ready to go.

Our large manufacturing facilities and wide spread distribution system permits us to make prompt shipment of almost any quantity of Elastite Expansion Joint from any one of a number of carefully located warehouse stocks. The map on pages 36 and 37 shows the locations of our branches and wholesale distributors throughout the country. At certain indicated distribution centers there are also maintained large stocks of material in sheets, with suitable mechanical equipment for cutting to any shape or dimension required.

Fig. 18—Elastite Expansion Joint being loaded for shipment in bulk.

ADVISORY SERVICE

TO better assist in solving questions related to the use or application of expansion joints in any type of construction we offer to engineers and contractors a free and unlimited consulting or advisory service. This department is headed by an engineer of many years broad, practical experience, a graduate of one of our greatest engineering schools, a Member of the American Society of Civil Engineers. Associated with him is a technical staff of capable graduate engineers, who by education, training and practical experience are well qualified to give sound advice and real assistance wherever needed. They are expansion joint experts and we invite you to avail yourselves of their services. Write us, giving information as completely as possible, and one of our engineers will call on you at his first opportunity.

OTHER Carey PRODUCTS

Asphalt—Asbestos—Magnesia

Built up Roofings
Ready Roofings
Asbestos Roofings
Asfaltslate Shingles
Asbestos Shingles
Freight Car and Locomotive Cab Roofings
Preformed Roofing Sheets
Roof Coatings
Roofing Felts
Deadening Felts
Roofing Asphalts
Waterproofing Asphalts
Pavement Filler Asphalts
Special Asphalts
Waterproofing and Damp Proofing Coatings
Preformed Membrane Waterproofing
Insulating Papers
Sheathing Papers
Shim Stock
Grease Stock
Felt Coverings
Asbestos Coverings
85% Magnesia Coverings
85% Magnesia Blocks
Underground Pipe Insulation
Asbestos Cements
Magnesia Cements
Carbonate Magnesia Powders
Paints and Thinners
Wood Preservatives
Asbestos Tank Jackets
Asbestos Table Mats
Asbestos Specialties
Asbestos Felts and Papers
Asbestos Tape
Asbestos Gaskets
Asbestos Rope and Packings
Asbestos Blocks
Asbestos Sheet and Mill Board
Asbestos Fibre, all grades